AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS

1. (currently amended) A system that facilitates control of a semiconductor process, comprising:

a control subsystem that controls at least a silicidation process of a semiconductor substrate; and

an analysis subsystem that analyzes a portion of the substrate at least in part during the silicidation process and sends a signal to the control subsystem, the analysis subsystem utilizing an interferometer.

2. (original) The system of claim 1, the analysis subsystem is a Fourier Transform Infrared (FTIR) analysis subsystem.

3. (original) The system of claim 1, the analysis subsystem is an ultraviolet FTIR analysis subsystem.

4. (original) The system of claim 1, the analysis subsystem sends the signal to the control subsystem to stop the silicidation process.

5. (original) The system of claim 1, the silicidation process includes a rapid thermal annealing (RTA) process.

6. (currently amended) The system of claim 1, ~~the analysis subsystem utilizes an interferometer~~ the control system controls silicide formation of the silicidation process with a tolerance factor of about 5 nm or less.

7. (original) The system of claim 1, the silicidation process utilizes a silicide selected from the group consisting of molybdenum, iron, platinum, niobium, hafnium, vanadium, zirconium, cobalt, titanium, and tantalum.

8. (original) The system of claim 1, the silicidation process utilizes a metallic silicide.

9. (original) The system of claim 1, the signal is transmitted from the analysis subsystem to the control subsystem via at least one of wired and wireless communication.

10. (original) The system of claim 1, the signal transmitted to the control subsystem initiates an orderly shutdown of the silicidation process.

11. (original) The system of claim 1, the control subsystem further comprises a monitor and control subsystem for monitor and control of the analysis subsystem, and a process control subsystem for monitor and control of the silicidation process.

12. (original) The system of claim 11, the monitor and control subsystem receives the signal and sends a corresponding signal to the process control subsystem to initiate shutdown thereof.

13. (original) The system of claim 11, the monitor and control subsystem includes a microscope for viewing a point of inspection of the substrate during the silicidation process.

14. (original) The system of claim 11, the monitor and control subsystem includes a presentation component that presents to a user a view of a point of inspection of the substrate during the silicidation process.

15. (original) The system of claim 11, the monitor and control subsystem includes a database of spectra data used to determine a state of the silicidation process.

16. (original) The system of claim 1, the analysis subsystem performs analysis of silicide formation during the silicidation process.

17. (original) The system of claim 1, the control subsystem automatically controls a sampling rate of the analysis subsystem during the silicidation process.

18. (original) The system of claim 1, the control subsystem automatically varies a sampling rate of the analysis subsystem in accordance with the time remaining to complete the silicidation process.

19. (original) The system of claim 1, the control subsystem controls the silicidation process to diffuse the silicide to about one-half of a source junction depth.

20. (original) The system of claim 1, the control system controls silicide formation of the silicidation process to a depth from about 10 nm to about 140 nm.

21. (original) The system of claim 1, the control system controls silicide formation of the silicidation process with a tolerance factor of about 15 nm or less.

22. (original) The system of claim 1, the control system controls silicide formation of the silicidation process to a depth from about 20 nm to about 130 nm with a tolerance factor of about 10 nm or less.

23. (currently amended) A system that facilitates control of a semiconductor process, comprising:

means for controlling a silicidation process on a semiconductor substrate;

means for analyzing a portion of the substrate during the silicidation process, the analyzing means comprises means for analyzing the silicidation process with an interferometer;

means for determining a state of the silicidation process based upon the portion analyzed; and

means for sending a signal to control the silicidation process based upon the state.

24. (original) The system of claim 23, the analyzing means is an FTIR spectroscopy subsystem.

25. (cancelled)

26. (original) The system of claim 23, the analyzing means comprises means for detecting a wavelength of light emitted from a light source through the substrate.

27. (currently amended) A method of controlling a semiconductor process, comprising:

controlling a silicidation process on a semiconductor substrate;

determining a state of the process based upon the substrate analysis; and

sending a signal to control the process based upon the state, the signal is sent in response to the process state determined to be within a ten percent tolerance factor of a desired silicide junction depth.

28. (original) The method of claim 27, the state of the process is determined using FTIR spectroscopy.

29. (original) The method of claim 27, the process includes an RTA process.

30. (original) The method of claim 27, the signal stops the process.

31. (currently amended) The method of claim 27, ~~the signal is sent in response to the process state determined to be within a ten percent tolerance factor of a desired silicide junction depth~~ the control system controls silicide formation of the silicidation process to a depth from about 10 nm to about 140 nm.

32. (original) The method of claim 27, further comprising analyzing the substrate at a plurality of locations to determine the state of the process.

33. (original) The method of claim 27, further comprising comparing spectra data of the silicidation process with predetermined stored spectra data to determine the state of the process.

34. (original) The method of claim 27, the process state is controlled such that the silicide formation does not exceed fifty percent of a source junction depth.

35. (currently amended) A method of controlling a semiconductor process, comprising:

controlling a silicidation process on a semiconductor substrate;

monitoring the silicidation process at: i) at both the source and drain regions substantially simultaneously or ii) at the source and drain regions interleavingly;

analyzing the substrate at a plurality of locations during the process;

comparing spectra data of the silicidation process with predetermined stored spectra data;

determining a state of the process based upon the compared spectra data; and

sending a signal to control the process based upon the state.

36. (original) The method of claim 35, the state of the process is determined using FTIR spectroscopy.

37. (original) The method of claim 35, the process includes an RTA process.

38. (original) The method of claim 35, further comprising fabricating a grating structure at a polysilicon layer to facilitate analyzing the substrate.

39. (original) The method of claim 35, the state of the process based upon at least a depth of a silicide used in the silicidation process.

40. (original) The method of claim 39, the depth of the silicide not to exceed one-half of the deep implant junction depth.

41. (original) The method of claim 35, the silicidation process is applied to fabrication of at least one of a bulk MOSFET device and an SOI MOSFET device.

42. (original) The method of claim 35, further comprising monitoring the silicidation process at both the source and drain regions substantially simultaneously.

43. (original) The method of claim 35, further comprising monitoring the silicidation process at the source and drain regions interleavingly.

44. (original) The method of claim 35, the silicidation process is controlled to form silicide to a depth from about 30 nm to about 120 nm with a tolerance factor of about 5 nm or less.

45. (new) A system that facilitates control of a semiconductor process, comprising:

a control subsystem that controls at least a silicidation process of a semiconductor substrate, the control system controls silicide formation of the silicidation process to a depth from about 10 nm to about 140 nm; and

an analysis subsystem that analyzes a portion of the substrate at least in part during the silicidation process and sends a signal to the control subsystem.